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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/807,686

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Robert A Leydier

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EXAMINER

ARORA, AJAY

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/807,686	<b>Applicant(s)</b> LEYDIER ET AL.
	<b>Examiner</b> AJAY K. ARORA	<b>Art Unit</b> 2892

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-7,10,12-17 and 19-32 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-7,10,12-17 and 19-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 5-7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (US 4,970,565), hereinafter Wu.

Regarding claims 1 and 20, Wu (refer to Figure 3) teaches a chip that may be used for a chip-containing portable article, comprising:

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a silicon substrate layer (17) having an active face with circuits integrated therein defining memories (Col. 2, lines 58-68), and

an additional layer (18) of silicon (Col. 3, lines 12-17) that:

is sealed to the active face of the silicon substrate layer (17) by a sealing layer (comprising 51),

covers at least part of said active face (Col. 2, lines 51-54); and

comprises physical means for providing physical protection against the action of electromagnetic radiation (Col. 2, lines 51-54).

However, Wu does not teach that:

- a). the integrated circuits also define “a central processor unit”; and
- b). the said electromagnetic radiation is “in the infrared range at a wavelength longer than  $1\mu\text{m}$ ”.

Integrated circuits defining central processor units and associated memories are well known in the art. It would have been obvious to one of ordinary skills in the art at the time of the invention to modify Wu such that Integrated circuits also define “a central processor unit”. The ordinary artisan would have been motivated to modify Wu for at least the purpose of providing the device with a memory circuit functionality that can be controlled by a central processor unit, as is typical of many computing devices.

Wu teaches that the said electromagnetic radiation may not only be ultraviolet light, but also other light or radiant energy (Col. 2, lines 51-54 and Col. 4, lines 42-44), which encompasses light of a specific wavelength range such as the infrared range at a wavelength longer than  $1\mu\text{m}$ . It would have been obvious to one of ordinary skills in the

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art at the time of the invention to modify Wu such that the physical means for providing physical protection against the action of electromagnetic radiation is adapted to electromagnetic radiation of a specific wavelength, such as electromagnetic radiation in the infrared range at a wavelength longer than  $1\mu\text{m}$ . The ordinary artisan would have been motivated to modify Wu for at least the purpose of providing protection to the device that may be sensitive to incident light of the specific wavelengths.

Regarding claim 5, Wu teaches that the means providing physical protection against the action of electromagnetic radiation may be silicon dopants (Col. 3, lines 12-16).

Regarding claim 7, Wu teaches that the silicon dopants may be boron (Col. 3, lines 12-16).

4. Claims 6, 21-23 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu in view of Kuehnle (US 5,534,056), hereinafter Kuehnle.

Regarding claim 6, Wu teaches substantially the claimed structure including the silicon dopants (Col. 3, lines 12-16), but does not teach the claimed concentration of silicon dopants; i.e. concentration in the range  $10^{17}$  to  $10^{20}$  atoms per  $\text{cm}^3$ . Kuehnle teaches that the extent of shielding provided by a doped semiconductor material depends on the dopant concentration and the wavelength of light from which shielding is desired (Col. 15, lines 15-35). Accordingly, it would have been obvious to one of ordinary skill in art

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to combine Wu in the range as claimed, because it has been held that where the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. See MPEP 2144.05. The ordinary artisan would have been motivated to modify Wu for at least the purpose of optimizing protection to the device with respect incident light of a specific wavelength (such as electromagnetic radiation in the infrared range at a wavelength longer than 1 $\mu$ m) which the device may be expected to be exposed to.

Regarding claims 21-23, Wu (refer to Figure 3) teaches that the silicon substrate layer (17) comprises physical means for providing physical protection against the action of electromagnetic radiation (Col. 2, lines 51-54), wherein said physical means of the silicon substrate layer comprises silicon dopants in the silicon substrate (Col. 2, lines 54-61 and Col. 3, lines 12-16), which includes the face of the silicon substrate layer that is opposite to the active face.

However, Wu does not teach that the concentration of the silicon dopants lies in the range recited in claim 22 and that the silicon dopants are phosphorous or boron (as recited in claim 23). These limitations have already been addressed in the rejection of claims 1 and 6-7.

All limitations of claims 26-28, respectively, have been addressed in the rejection of claims 21-23, respectively.

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5. Claims 10, 12-13, 24 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu in view of Kobachi et al. (US 5,811,797) of prior record, hereinafter Kobachi.

Regarding claims 10, 12-13 and 24, Wu teaches substantially the claimed structure, but does not teach that the physical means “for providing physical protection against the action of electromagnetic radiation are formed by surface irregularities”. Kobachi (refer to Figure 22) teaches a semiconductor chip package wherein a physical means for providing protection against the action of electromagnetic radiation (Col. 15, lines 3-10) are formed by surface irregularities (345) in the physical means. It would have been obvious to one of ordinary skills in the art at the time of the invention to modify Wu such that the physical means for providing physical protection against the action of electromagnetic radiation are formed by surface irregularities and that the said surface irregularities are provided in all faces of a shielding layer (the additional layer of silicon or silicon substrate of Wu); i.e. including the faces recited in claims 12, 13 and 24, to increase shielding effectivity. The ordinary artisan would have been motivated to modify Wu for at least the purpose of using the irregularities to scatter the unwanted incident electromagnetic radiation (see Kobachi, Col. 15, lines 3-10) in all surfaces of the shielding layer and thus increase the shielding effectiveness.

Claim 29 is similar to claim 24 and hence the same rejection applies.

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6. Claims 14-17, 19 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu in view of IDS reference Ishikawa (US 5,394,014), hereinafter Ishikawa.

Regarding claims 14 and 16-17, Wu teaches that the physical means for providing physical protection against the action of electromagnetic radiation may be formed by the additional layer of silicon or at least one deposition of metal, but does not teach that the above two may be used together; i.e. "by at least one deposition of metal on the additional layer of silicon". Ishikawa teaches that physical means for providing physical protection against the action of electromagnetic radiation may be formed by at least one deposition of metal on a layer of silicon-based material (Col. 4, lines 55-60). It would have been obvious to one of ordinary skills in the art at the time of the invention to modify Wu such that the physical means for providing physical protection against the action of electromagnetic radiation is formed by at least one deposition of metal on a layer of silicon-based material or similarly by stacking one metal layers on each side of the silicon-based material (to further increase shielding effectiveness), as recited in claims 16 and 17. The ordinary artisan would have been motivated to modify Wu for at least the purpose of increasing shielding effectiveness by using shielding by both reflection and absorption of the electromagnetic radiation (Col. 4, lines 59-60), and using multiple, stacked shielding layers, which further increases shielding effectiveness..



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Regarding claims 15 and 19, Wu teaches substantially the claimed device but does not teach the claimed metal deposition thickness of “greater than 50 Å” (as recited in claim 15), or “about 100 Å” (as recited in claim 19). Ishikawa teaches that thickness of a light shielding layer is a known variable in the shielding effectiveness of the shielding layer and that it is desirable for the shielding layer to be thin (Col. 2, lines 38-43, 49-55 and 61-66). It would have been obvious to one having ordinary skill in the art at the time the inventions was made to modify Wu such that the metal deposition has a thickness as claimed, since it has been held that discovering an optimum value of a result effective variable (the metal thickness in this case, which can be optimized for a specific device requiring shielding from electromagnetic radiation of a specific wavelength and intensity) involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 30, Wu (refer to Figure 3) teaches a chip that is capable of functioning for a chip-containing portable article comprising:

a silicon substrate layer (17) having an active face with circuits integrated therein defining memories (Col. 2, lines 58-68); and

physical means for providing physical protection against the action of electromagnetic radiation (Col. 2, lines 51-54) comprising deposition of metal (18) on a face of the silicon substrate layer.

However, Wu does not teach that:

a). that the integrated circuits also define “a central processor unit”; and

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b). that the said electromagnetic radiation is “in the infrared range at a wavelength longer than  $1\mu\text{m}$ ”.

c). that the metal is on the face of the silicon substrate layer “that is opposite to the active face”.

Limitations a and b have already been addressed in the rejection of claim 1.

Ishikawa teaches that a light shielding layer (31 of Figure 4 or 61 of Figures 6-7) may be applied on any face of a silicon substrate (2 of Figures 1 & 3-5 or 62 of Figure 6). It would have been obvious to one of ordinary skills in the art at the time of the invention to modify Wu such that the metal (i.e. light shielding layer) is on a specific face, such as the face of the silicon substrate layer that is opposite to the active face. The ordinary artisan would have been motivated to modify Wu for at least the purpose of providing a shielding layer (or an additional shielding layer to increase shielding effectiveness) on any face (or all faces) which may be susceptible to electromagnetic radiation from which protection is sought.

Regarding claims 31 and 32, Wu teaches substantially the claimed device but does not teach the claimed metal deposition thickness of “greater than  $50\text{ \AA}$ ” (as recited in claim 31), or “about  $100\text{ \AA}$ ” (as recited in claim 32). Ishikawa teaches that thickness of a light shielding layer is a known variable in the shielding effectiveness of the shielding layer and that it is desirable for the shielding layer to be thin (Col. 2, lines 38-43, 49-55 and 61-66). It would have been obvious to one having ordinary skill in the art at the time the inventions was made to modify Wu such that the metal deposition has a thickness as

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claimed, since it has been held that discovering an optimum value of a result effective variable (the metal thickness in this case, which can be optimized for a specific device requiring shielding from electromagnetic radiation of a specific wavelength and intensity) involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Response to Arguments***

7. Applicant's arguments filed 01/19/2010 have been fully considered but they are not persuasive.

On page 5 of applicant's response, applicant argues regarding the rejection of claim 1 stating that "Examiner is engaging in a kind of inherency argument, i.e. that because Wu states "other radiant energy" that includes IR at a wavelength longer than 1  $\mu\text{m}$ ". However, a teaching is only inherent from a disclosure if that is the only possible inference drawn from the teaching". This argument is not persuasive. Examiner has not stated that the teaching of "IR at a wavelength longer than 1  $\mu\text{m}$ " is inherent in Wu, and that is why an obviousness type rejection for the above teaching was provided (see page 4, last para of office action of 10/16/2009). Had examiner argued inherency, it would have obviated the need for an obviousness type rejection for the above missing limitation. In the rejection, examiner shows that Wu teaches that said electromagnetic radiation may not only be ultraviolet light, but also other light or radiant energy (see Wu,

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Col. 2, lines 51-54 and Col. 4, lines 42-44). Thus, it is reasonable to say that one of ordinary skill in the art at the time of the invention would contemplate modifying Wu for use with electromagnetic radiation other than ultraviolet light (such as, but not limited to, electromagnetic radiation in the infrared range at a wavelength longer than 1  $\mu\text{m}$ ). Also see corresponding motivation provided in the rejection of claim 1.

Further, it has been ruled that something that is old does not become patentable upon the discovery of a new property. The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer. *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). MPEP 2112 (I).

On pages 5-6, item 2, applicant argues that Wu teaches "memory cell" and appears to imply that for this reason, it does not read on "a chip" which is claimed. This argument is not persuasive. A memory cell is part of a chip and as stated in the rejection of claim 1, the "chip" comprised a silicon substrate layer (17), as shown in Figure 3 of Wu. Thus, a "memory element" and a "chip" are not mutually exclusive, as applicant appears to imply.

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On page 6, item 3, applicant argues that layer 51 of Wu is not a “sealing layer” as it is a doped silicon glass layer. This argument is not persuasive. A seal may be interpreted as a structure that closes or makes secure against access, leakage or passage by a fastening or a coating. Layer 51 is part of the structure that attaches 18 to 17, and thus makes secure against access, leakage or passage by forming a coating between layer 18 and 17 of Figure 3 of Wu. As such, layer 51 forms a seal. The fact that the layer is “a boron/phosphorous-doped silicon glass’ that has “openings through which the conductive radiation shield 18 may contact contact regions 19 and 31” does not prevent layer 51 from being a seal. The “openings’ do not expose the sealed area to, for example, the external atmosphere - they provide a way to connect various parts of the device which still keeping the device sealed with respect to external atmosphere. Note that the seal is not required to have a specific sealing effectivity or ability to seal against any specific element. This is a very broad recitation and reads on any type of seal.

On page 6, last paragraph, applicant argues that it would “first require that the person would recognize the need for protecting against light other than UV light” and appears to conclude that this would not be possible as “Wu does not state anything to indicate a vulnerability to exposure to other forms of electromagnetic radiation”. This argument is not persuasive. As already explained above, Wu teaches that said electromagnetic radiation may not only be ultraviolet light, but also other light or radiant energy (see Wu, Col. 2, lines 51-54 and Col. 4, lines 42-44); i.e. Wu is aware that protection may also be required from one or more of other types of radiation.

On page 7, last 2 paragraph, applicant argues that Kuehnle reference is inappropriate to show obviousness as it teaches "manipulation of dopant concentrations to block certain categories of wavelength" but not specifically the concentration "useful to protect against IR radiation greater than  $1\mu\text{m}$ ". This argument is not persuasive. Kuehnle teaches that the extent of shielding provided by a doped semiconductor material depends on the dopant concentration and the wavelength of light from which shielding is desired (Col. 15, lines 15-35); i.e. identifies extent of shielding provided as a results effective variable. Accordingly, it would have been obvious to one of ordinary skill in art to combine Wu in the range as claimed, because it has been held that where the general conditions of the claims are discloses in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. See MPEP 2144.05. The ordinary artisan would have been motivated to modify Wu for at least the purpose of optimizing protection to the device with respect incident light of a specific wavelength (such as electromagnetic radiation in the infrared range at a wavelength longer than  $1\mu\text{m}$ ) which the device may be expected to be exposed to.

The remainder of the arguments are similar to arguments that have already been addressed above.

### ***Conclusion***

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**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AJAY K. ARORA whose telephone number is (571)272-8347. The examiner can normally be reached on Mon through Fri, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thao X. Le can be reached on (571) 272-1708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thao X Le/  
Supervisory Patent Examiner, Art Unit 2892

/A. K. A./  
Examiner, Art Unit 2892